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| EXAMINER |
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KNUTSON, JACOB D

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3611

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06/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/597,506 | Applicant(s) KOMATSU ET AL. | |
| | Examiner JACOB KNUTSON | Art Unit 3611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/27/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims **13** and **22** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite "A tractor wherein ...", the inclusion of the word "comprising" would describe a tractor and include all the elements "a transmission ..." with the tractor. As it is stated now, it is describing a tractor and the later elements that are not associated with the tractor. This is unclear. Also, the claims recite "A tractor wherein a transmission casing is arranged in a rear portion of a vehicle body". The "A tractor" is limiting the scope of the claims to a tractor while "a vehicle body" is trying to broaden the scope of the claim to a vehicle. This is unclear.

3. Claims **17, 18, 26** and **27** recites the limitation "the main transmission" in line **4** of all the claims. There is insufficient antecedent basis for this limitation in the claim.

4. Claims **17, 18, 26** and **27** recites the limitation "the sub transmission" in line **5** of all the claims. There is insufficient antecedent basis for this limitation in the claim.

5. Claims **17, 18, 26** and **27** recites the limitation "the turning hydrostatic transmission" in lines **4** and **9** of all the claims. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims **13 – 21 are** rejected under 35 U.S.C. 102(b) as being **anticipated** by **Akashima et al. (US 2006/0048977 A1)**.

For claim **13**, Akashima et al. discloses a tractor wherein a transmission casing **12** is arranged in a rear portion of a vehicle body, a front axle casing **2** is arranged in the front portion of the vehicle body, and power from an engine **10** is transmitted from an output shaft **34** (auxiliary speed change shaft) supported by the transmission casing through a power transmission shaft **38** (intermediate shaft) to an input shaft **24** (traveling transmission shaft) supported by the front axle casing, characterized in that a gear casing **152** is disposed between the transmission casing and the front axle casing as shown in Fig. **9** and described in page **8**, paragraph **[0121]**, lines **6 – 9**, the gear casing is detachably attached to a clutch **27** housing (the clutch is housed as shown in Fig. **8**) disposed before the transmission casing, the output shaft of the transmission casing and an input shaft **148** (first transmission shaft) of the gear casing are arranged on a same line and connected to each other, indirectly, as shown in Fig. **20**, and the input shaft of the front axle casing and an output shaft **150** (second transmission shaft) of the gear casing are arranged on a same line and connected to each other as shown in Fig. **20**.

For claim **14**, Akashima et al. discloses a tractor wherein a differential mechanism of traveling vehicle disposed in the front portion of the tractor comprises: a differential **25** (forced differential mechanism) connecting left and right output shafts **3** (right and left axles), supported by the front axle casing, through a pair of planetary gear mechanisms **39**; a turning hydrostatic transmission **45** (hydraulic steering motor) giving difference of rotation speed on the output shafts through the planetary gear mechanisms so as to perform turning of the vehicle; and a mechanical turning transmission **44** (hydraulic steering pump) changing power from the turning hydrostatic transmission in speed and then transmitting the power to the differential.

For claim **15**, Akashima et al. discloses a tractor wherein the mechanical turning transmission is a hydraulic-clutch type turning transmission.

For claim **16**, Akashima et al. discloses a tractor wherein the turning transmission is interlockingly connected to a sub transmission () disposed in the transmission casing.

For claim **17**, Akashima et al. discloses a tractor wherein power from the engine mounted on the traveling vehicle of the tractor is transmitted to a hydraulic clutch type forward/rearward traveling switching device **44** (hydraulic steering pump) and the main transmission, subsequently the power is transmitted to the sub transmission and changed in speed, and then traveling drive is performed, the turning hydrostatic transmission is actuated so as to control turning of the vehicle, and pressure oil is returned from the turning hydrostatic transmission through an oil cooler **179** to the transmission casing.

For claim **18**, Akashima et al. discloses a tractor wherein power from the engine mounted on the traveling vehicle of the tractor is transmitted to a hydraulic clutch type forward/rearward traveling switching device **44** (hydraulic steering pump) and the main transmission, subsequently

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the power is transmitted to the sub transmission and changed in speed, and then traveling drive is performed, the turning hydrostatic transmission is actuated so as to control turning of the vehicle, and pressure oil returning from the turning hydrostatic transmission is supplied through an oil cooler **179** to frictional boards of the hydraulic clutch of the forward/rearward traveling switching device.

For claim **19**, Akashima et al. discloses a tractor wherein a crawler traveling unit (as shown in Fig. **1**) is provided in the tractor, the crawler traveling unit is constructed so that a track roller **6** (tension rollers) is provided between a drive sprocket(s) **4** and an idler(s) **8** and a crawler belt(s) **9** is wound around the drive sprocket, the idler and the track roller, a shaft **1** (crawler frames) rotatably supporting the track roller is divided into plural parts, and the divided shafts are connected to each other through an elastic member as shown in Fig. **1**.

For claim **20**, Akashima et al. discloses a tractor wherein ends of the divided shafts are shaped so as to engage with each other.

For claim **21**, Akashima et al. discloses a tractor wherein the ends of the divided shafts are shaped so as to mesh with each other.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims **22 - 30 are** rejected under 35 U.S.C. 103(a) as being unpatentable over **Akashima et al. (US 2006/0048977 A1)** in view of **Nakatani et al. (US 7,089,824 B2)**.

For claim **22**, Akashima et al. discloses a tractor wherein a transmission casing **12** is arranged in a rear portion of a vehicle body, a front axle casing **2** is arranged in the front portion of the vehicle body, and power from an engine **10** is transmitted from an output shaft **34** (auxiliary speed change shaft) supported by the transmission casing through a power transmission shaft **38** (intermediate shaft) to an input shaft **24** (traveling transmission shaft) supported by the front axle casing, characterized in that a gear casing **152** is disposed between the transmission casing and the front axle casing as shown in Fig. **9** and described in page **8**, paragraph **[0121]**, lines **6 – 9**, the output shaft of the transmission casing and an input shaft **148** of the gear casing are arranged on a same line and connected to each other, indirectly, as shown in Fig. **20**, and the input shaft of the front axle casing and an output shaft **150** (second transmission shaft) of the gear casing are arranged on a same line and connected to each other as shown in Fig. **20**. Akashima et al. does not disclose the gear casing being constructed integrally with a flywheel casing disposed behind an engine. Nakatani et al. does disclose a gear casing (traveling transmission housing with a gear transmission mechanism housed within) being constructed integrally with a flywheel casing disposed behind an engine as stated in column **1**, lines **17 – 26**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to alternatively use connection and orientation of Nakatani et al. with the mechanism of Akashima et al. modified as above to allow for a more compact assembly reducing the size of the apparatus increasing its efficiency.

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For claim **23**, Akashima et al. modified as above discloses a tractor wherein a differential mechanism of traveling vehicle disposed in the front portion of the tractor comprises: a differential **25** (forced differential mechanism) connecting left and right output shafts **3** (right and left axles), supported by the front axle casing, through a pair of planetary gear mechanisms **39**; a turning hydrostatic transmission **45** (hydraulic steering motor) giving difference of rotation speed on the output shafts through the planetary gear mechanisms so as to perform turning of the vehicle; and a mechanical turning transmission **44** (hydraulic steering pump) changing power from the turning hydrostatic transmission in speed and then transmitting the power to the differential.

For claim **24**, Akashima et al. modified as above discloses a tractor wherein the mechanical turning transmission is a hydraulic-clutch type turning transmission.

For claim **25**, Akashima et al. modified as above discloses a tractor wherein the turning transmission is interlockingly connected to a sub transmission disposed in the transmission casing.

For claim **26**, Akashima et al. modified as above discloses a tractor wherein power from the engine mounted on the traveling vehicle of the tractor is transmitted to a hydraulic clutch type forward/rearward traveling switching device **44** (hydraulic steering pump) and the main transmission, subsequently the power is transmitted to the sub transmission and changed in speed, and then traveling drive is performed, the turning hydrostatic transmission is actuated so as to control turning of the vehicle, and pressure oil is returned from the turning hydrostatic transmission through an oil cooler **179** to the transmission casing.

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For claim **27**, Akashima et al. modified as above discloses a tractor wherein power from the engine mounted on the traveling vehicle of the tractor is transmitted to a hydraulic clutch type forward/rearward traveling switching device **44** (hydraulic steering pump) and the main transmission, subsequently the power is transmitted to the sub transmission and changed in speed, and then traveling drive is performed, the turning hydrostatic transmission is actuated so as to control turning of the vehicle, and pressure oil returning from the turning hydrostatic transmission is supplied through an oil cooler **179** to frictional boards of the hydraulic clutch of the forward/rearward traveling switching device.

For claim **28**, Akashima et al. modified as above discloses a tractor wherein a crawler traveling unit is provided in the tractor, the crawler traveling unit (as shown in Fig. **1**) is constructed so that a track roller **6** (tension rollers) is provided between a drive sprocket(s) **4** and an idler(s) **8** and a crawler belt(s) **9** is wound around the drive sprocket, the idler and the track roller, a shaft **1** (crawler frames) rotatably supporting the track roller is divided into plural parts, and the divided shafts are connected to each other through an elastic member as shown in Fig. **1**.

For claim **29**, Akashima et al. modified as above discloses a tractor wherein ends of the divided shafts are shaped so as to engage with each other.

For claim **30**, Akashima et al. modified as above discloses a tractor wherein the ends of the divided shafts are shaped so as to mesh with each other.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Knutson whose telephone number is (571) 270-5576. The examiner can normally be reached on Monday to Thursday, 6:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley Morris can be reached on 571-272-6651. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.D.K/

May 28, 2009

/Lesley D. Morris/
Supervisory Patent Examiner, Art Unit 3611